BULL. BOT. SURV. INDIA
Vol. 18, Nos. 1-4 : pp. 172-177, 1976

THE LICHEN FLORA OF PACHMARHI—I

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ABSTRACT

The lichen flora of India has only been partially investigated. A perusal of the literature on Indian lichens has revealed that the lichen flora of Pachmarhi (Madhya Pradesh) has remained totally unexplored. The present paper gives an account of the taxonomic investigations carried out by the author on the forest areas of Pachmarhi, which includes 5 species *viz*: *Graphina pertricosa, G. junghuhnii, Parmelia cooperii, P. tinctorum, Leptotrema wightii,* and the former two are new reports from India.

INTRODUCTION

Lichen studies have been neglected in India. The outstanding work on taxonomical aspects by Awasthi (1963, 1965, 1971) on himalayan lichens and recently by Patwardhan and Badhe (1971, 1973) on lichens from Western India, made significant contribution to the lichen flora of India. The work on all aspects of lichens is essential from various regions of India so as to make lichen flora of India up-to-date. From this point of view the author started working on lichen flora of Pachmarhi, initially on taxonomy and eventually on chemistry and microbiology of lichen substances and development and cytology of sex organs.

Pachmarhi in the Sohagpur tahsil of Hoshangabad district, Madhya Pradesh, is situated in 20°.28′ N and 76°.26′ E on a plateau of Satpura range about 40 km from Pipariya. The plateau of the Satpura hills on which the town stands, at an elevation of about 1000 m, has an area of 155 square kilometers, the greater part of which is covered by forests. The range of temperature during the months of May to July in summer season is 35°C to 40°C maximum and 23.2°C to 26.1°C minimum, while in the months of September to March falling in winter season it is 21.1°C maximum 4.4°C minimum. The rainfall which is generally received during the months of July, August and December has an average of 80″

The existence of plants that are usually found only by the side of large expanses of water, made Botanists to believe that volcanic action changed a vast lake into what is now the saucer-shaped Pachmarhi plateau with the high rocky hills forming the outer edge of the saucer. There are big valleys in the inner range of rocky hills with thick vegetation. Angiospermic flora is well flourishing with trees of *Jacaranda ovalifolia, Delonix regia, Bauhinia variegata, Bombax malabaricum, Anogeisus latifolia, Euphorbia nivulia, Ficus benghalensis, Ficus glomerata, Ficus religiosa* etc. providing ample space for the growth of lichens.

It has been observed by the author that the lichen flora of Pachmarhi represents most of the crustose and foliose forms and rarely fruticose. It shows resemblance to lichen flora of south-west ghats to some extent. The lichen flora is dominated by the members of the families *Lecanoraceae, Lecideaceae, Graphidaceae, Thelotremataceae, Pertusariaceae, Physciaceae, Parmeliaceae*

Date of receipt: 7. 5. 75. Date of acceptance: 8. 3. 78

and *Collemataceae*. Crustose forms, particularly from Thelotremataceae and Graphidaceae grow luxuriantly near water falls in the valley Patharchata.

The present paper, which is first in its series, gives an account of 5 species (2 new report to India) of lichens collected from Pachmarhi by the author.

Leptotrema wightii (Tayl.) Müll.-Arg. (Plates 1 & 2).

Thallus pale greenish to mineral gray, thick and epiphloedal, bulging up, surface smooth but grainy in appearance, cortex columner, apothecia immersed, 0.1-0.3 mm in diameter, non-carbonized, without a columella; pore round, 0.7-1.1 mm in diameter, hymenium 180 μ m high; asci octosporous; ascospores brown, round to oval, muriform with 3-6 transverse locules and 1-2 longitudinal locules, 9.4-11.2 × 18.8-25 μ m.

Chemistry: Thallus K— C— KC— P— , I—

TLC: No substances.

Habitat: Corticolous (near water).

Locality: Patharchata: PDB: LHBN: 35, 36, 37. 1974.

This pantropical species has been discussed in detail by Salisbury (1971). It occurs at low elevations in dry scrub forests and extends northward into temperate forests of North America and southward into Argentina. Recently Hale (1974) described this species from Dominica, an Antilles islands. In India this species occurs abundantly in Coorg and Kerala forests.

Graphina pertricosa (Kremp.) Red. (Plates 3 & 4).

Thallus smooth, whitish gray to greenish gray, continuous sub-epiphloedal, 3-7 cm across. Lirellae black, slender, curved, branched; labia convergent, non-striated, exciple carbonized; hypothecium non-carbonized; asci cylindricoclavate, octosporous; ascospores hyaline elliptical, muriform, 6-9 transverse septa, 4-5 longitudinal septa, 25.2 × 8.4 μ m.

Chemistry: Thallus K+red, C– , KC– P–

TLC: Norstictic acid.

Habitat: Corticolous (on tree trunks near water).

Locality: Patharchata: PDB: LHBN: 21, 22. 1974.

This species was found always associated with *Thelotrema* and *Leptotrema* on the tree trunks near water at low altitudes and reported for the first time from India.

G. junghuhnii (Mont.) Naka.

Thallus greenish gray, continuous, smooth, 3-4 cm across, Lirellae, concolourous with thallus, small, branched, slit wide open; labia slightly convergent to divergent, non-striated, exciple non-carbonized; hypothecium hyaline, asci cylindricoclavate, one to two spored; ascospores hyaline, suboblong, muriform, 92.4 × 25.2 μ m.

Chemistry: Thallus K+yellow, C– KC– , P+yellow.

TLC: Constictic and stictic acid.

Habitat: Corticolous (on tree trunks).

Locality: Tamia: PDB: LHBN: 20. 1974.

This species is a new report from India.

Parmelia tinctorum Nyl. (Plate 5).

Thallus loosely attached, light mineral gray, 5-8 cm in diameter; lobes subirregular to rotund, imbricate, crowded, 3-4 mm wide, upper surface plane to uneven and becoming white pruinose at the lobe tips, moderately isidiate, isidia simple; medulla white to pale yellow; lower surface brownish black; apothecia lacking or rare.

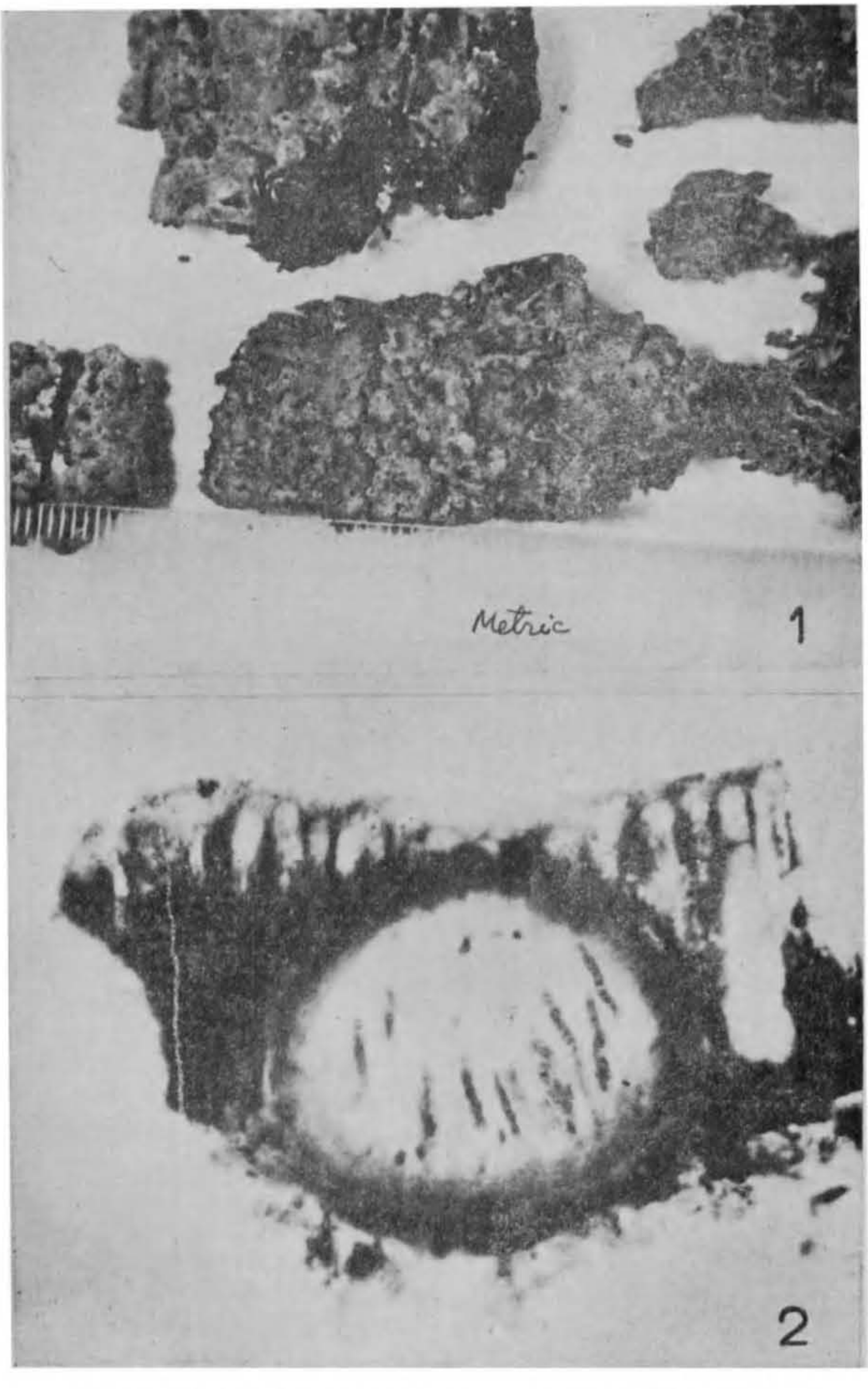
Chemistry: Cortex K+yellow; C+medulla; C+orange to red, KC+red, P–

TLC: Lecanoric acid, atranorine.

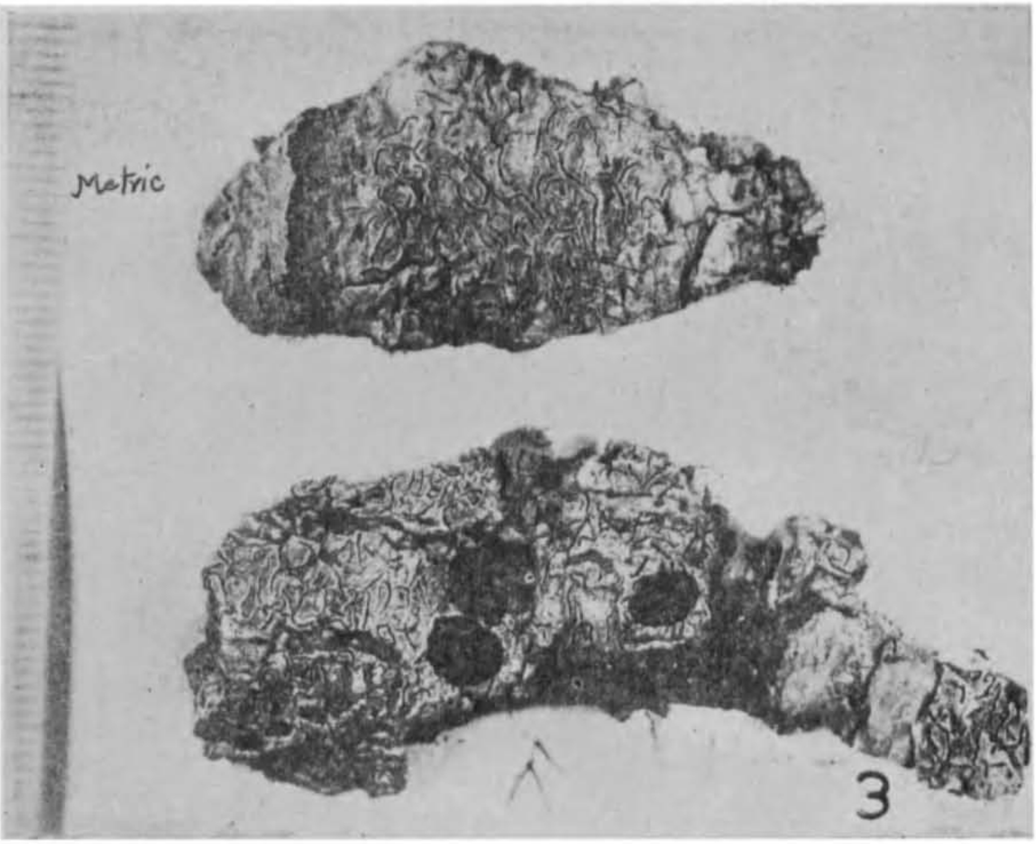
Habitat: Corticolous.

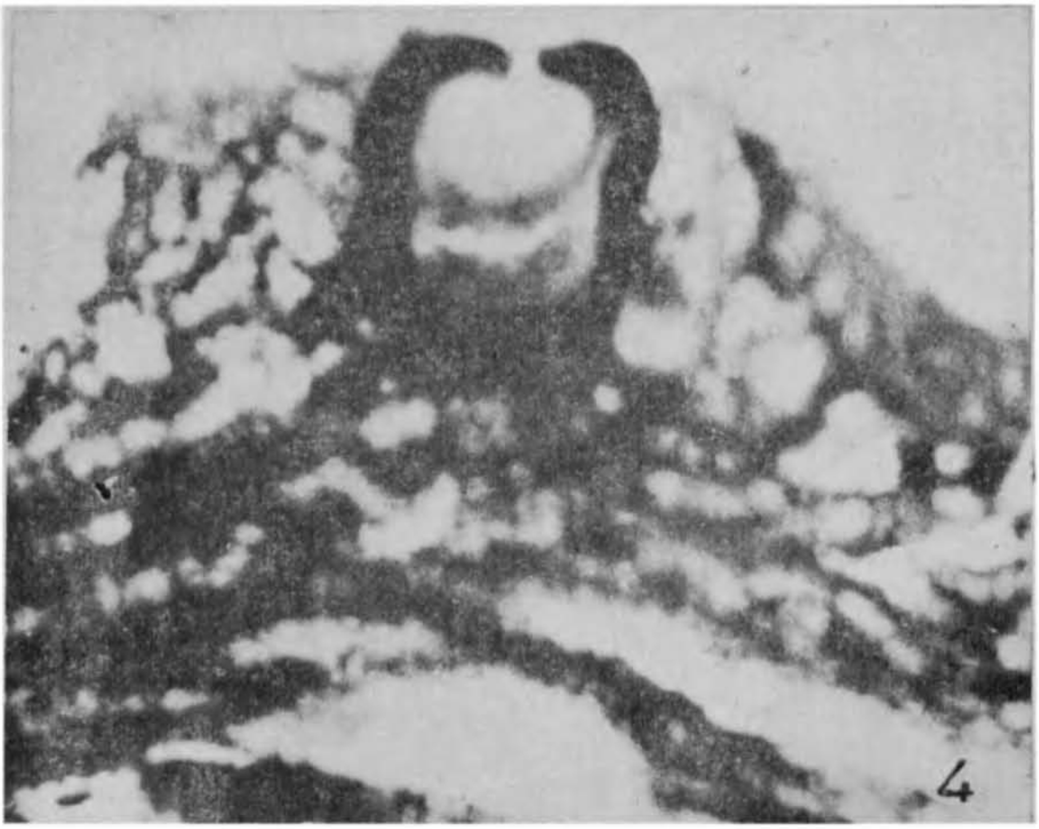
Locality: On way to Beefall: PDB: LHBN: 49, 50, 51. 1974.

This species is world wide in distribution and abundant in Western ghats and Himalayas in India.

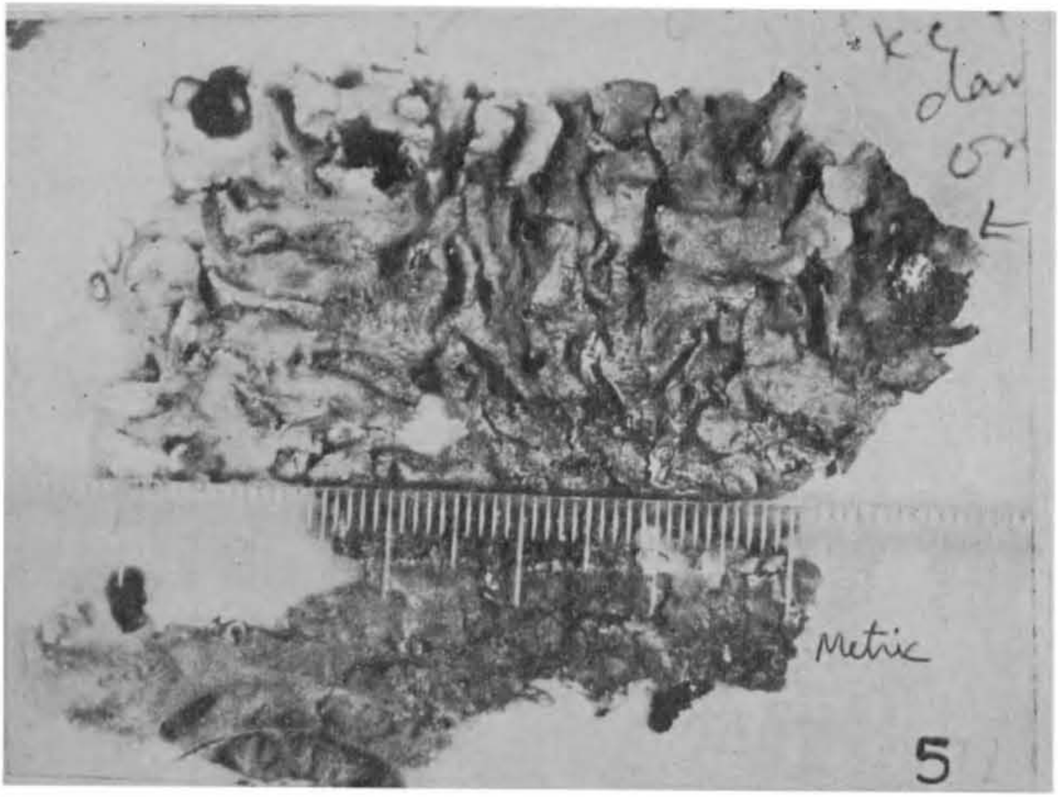


Plates 1 & 2 : 1. Photograph of *Leptotrema wightii* (Tayl.) Müll-Arg: Habit.
2. Photomicrograph of *Leptotrema wightii* (Tayl.) Müll-Arg. V. S. of apothecium. × 150.





Plates 3 & 4: 3. Photograph of *Graphina pertricosa* (Kremp.) Red. : Habit.
4. Photomicrograph of *Graphina pertricosa*. V. S. apotheciam.



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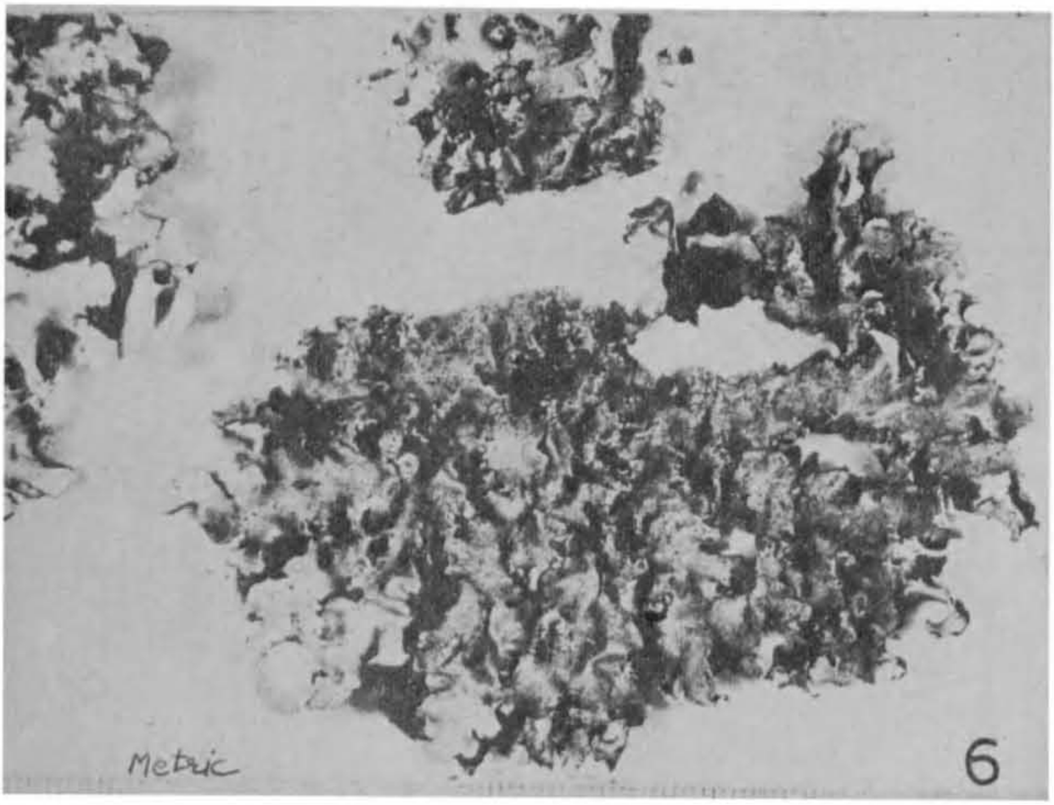

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Plates 5 & 6: 5. Photograph of *Parmelia tinctorum* Nyl. : Habit. 6. Photograph of *Parmelia cooperii* Zahlbr. : Habit.

P. cooperii Stein & Zahlbr. (Plate 6).

Thallus loosely adnate, 5-10 cm in diameter, greenish gray; lobes broad, round and convoluted, 6-8 mm wide, upper surface uneven, non-isidiate, sorediate along the margins, soredia white powdery; lower surface black, rhizinate; rhizines simple; apothecia lacking.

Chemistry: Cortex, K+yellow, medulla C+orange, KC+red, P+yellow.

TLC: Lecanoric acid, atranorine.

Habitat: Corticolous.

Locality: On way to Beefall: PDB: LHBN: 47, 48. 1974.

ACKNOWLEDGEMENTS

I am grateful to Dr. V. R. Dayansagar, Prof. and Head of the Botany Department, Nagpur University, Nagpur, for going through the manuscript and laboratory and library facilities. I also wish to express my thanks to Dr. M. E. Hale, Jr. Curator, Smithsonian Institution, Washington, DC, for the help rendered in identifying lichen taxa and lichenic acids (TLC method). Lastly thanks are due to Dr. P. G. Patwardhan, Co-principal investigator lichen project, M.A.C.S., Poona-4, for the help and encouragement.

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